

Notice of Allowability

Application No.

10/691,904

Applicant(s)

KUWABARA, MASAYUKI

Examiner

Greg F. Cunningham

Art Unit

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to application filed 10/22/2003.
2. ☒ The allowed claim(s) is/are 1-4.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

DETAILED ACTION

1. This action is responsive to application filed 10/22/2003.
2. The disposition of the claims is as follows: claims 1-4 are pending in the application.
Claims 1 and 3 are independent claims.

Allowable Subject Matter

3. Claims 1-4 are allowed.
4. The following is an examiner's statement of reasons for allowance:

Applicant's independent claims 1 and 2 stand novel over the related prior art.

For instance, the related art of Litt et al. (US 5,091,963), method and apparatus for inspecting surfaces for contrast variation does so by a calculated, digitized distribution of intensity levels resulting from fitting, by the least squares technique, of a curve to the information from FIG. 4. In FIG. 6, the difference obtained by subtracting the curve of FIG. 5 from the curve of FIG. 4 is plotted. In FIG. 6, the gray level has been adjusted to an average value (170) by adding to the difference between FIGS. 4 and 5 the intensity level of the pixel in FIG. 4 that lies at the left end of the row. FIG. 6, when compared to FIG. 4, shows that the effects of illumination non-uniformities have been substantially removed. Variations in intensity levels in FIG. 6 appear to result from other noise sources, except for the substantial central variation that is the contrast information of interest. The improved ability in FIG. 6, compared to FIG. 4, to detect the desired information is readily apparent.

Although not quite so similar, Chandrasekhar (Pub. No. US 2002/0146171 A1) discloses a method, apparatus and system for black segment detection where the partial derivative of the

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average gray level for the columns can be determined by averaging the average gray level of pixels within a column with the average darkness level of pixels within a succeeding column. The results of the partial derivative can be made more robust by first sampling the columns of the digital image and then taking the partial derivative of the average gray level of the sampled columns. Filtering the partial derivative also improves the results. One way of filtering the partial derivative is by using a threshold function.

However, the instant invention employs, inter alia, difference data that is generated by calculating the difference in the gray level data between corresponding pixels of patterns to be compared, the average gray level data is generated by calculating the average level of the gray level data for each pixel column in the direction in which the line extends in a fixed range in the line part, and a type of the area to which each pixel column belongs is determined by statistically processing the average gray level data.

Therefore as claimed by the combined elements of independent claims 1 and 3, the cited references and prior art of record lack separately and in combination the elements of amended claims. Claims 2 and 4 depend from allowable claims 1 and 3, respectively and therefore are also allowed.

5. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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Responses

6. Responses to this action should be mailed to: Commissioner of Patents and Trademarks, Washington, D.C. 20231. If applicant desires to fax a response, (703) 872-9306 may be used for formal communications.

Inquiries

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory F. Cunningham whose telephone number is (571) 272-7784.

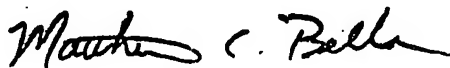
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt Bella can be reached on (571) 272-7778. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Greg Cunningham

Examiner, Art Unit 2624



**MATTHEW C. BELLA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600**

2/23/2007

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